

CLAIMS

What is claimed is:

1. A method for measuring at least one of a Kerr effect and lubricant thickness on a first object, comprising the steps of:
 - transmitting a first light signal toward the first object;
 - receiving a reflected light signal that has reflected off said first object, said reflected light signal comprising a first mixed reflected polarized component having a first phase and a second mixed reflected polarized component having a different phase;
 - separating from said reflected light signal said first mixed reflected polarized light signal component having a first phase and said second mixed reflected polarized light signal component having a different phase, wherein said first mixed reflected polarized light signal component comprises both P-polarized and S-polarized light relative to the plane of incidence of said reflected light signal, and wherein said second mixed reflected polarized light signal component comprises both P-polarized and S-polarized light relative to the plane of incidence of said reflected light signal;
 - detecting a first intensity of said first mixed reflected polarized light signal component;
 - detecting a second intensity of said second mixed reflected polarized light signal component;
 - determining a difference in phase between said first and second mixed reflected polarized light signal components based upon said first and second intensities; and
 - measuring at least one of the Kerr effect and the lubricant thickness based upon said difference in phase.